

## CLAIMS

### WHAT IS CLAIMED IS:

1. A biochemical sensing device, including:
  - 5 a bearing body, which bears a reagent thereon, and the reagent contains a specific compound, a first enzyme, a second enzyme, and a luminol, in which the specific compound and the first enzyme will produce a reaction and then generate  $H_2O_2$ , whereas the  $H_2O_2$ , the second enzyme, and the luminol will produce a chemiluminescent reaction;
  - 10 a sensing element, fabricated by a semiconductor process for sensing the light generated by the chemiluminescent reaction as well as for converting the sensed optical signal into a current signal;  
a current/voltage converting circuit, capable of converting the current signal into a voltage signal, and
  - 15 an electronic device, which can receive and process the voltage signal so as to perform a quantitative analysis on the specific compound.
2. The biochemical sensing device as claimed in claim 1, wherein the specific compound is selected from the following human body compound: glucose, cholesterol, uric acid, lactate, phospholipids, and triglycerides.
- 20 3. The biochemical sensing device as claimed in claim 1, wherein the luminol reagent can be selected from the following chemiluminescent reagent: luminol, 2-methyl indole, isoluminol, dioxetane, acridinium ester, lucigenin, AMPPD, CDP-Star, and CSPD.
4. The biochemical sensing device as claimed in claim 1, wherein the first

enzyme is selected appropriately according to the type of specific compound that exists.

5. The biochemical sensing device as claimed in claim 1, wherein the second enzyme is peroxidase.

5 6. The biochemical sensing device as claimed in claim 1, wherein the sensing element can be a photodiode.

7. The biochemical sensing device as claimed in claim 1, wherein the sensing element is designed for sensing the luminescence light, fluorescence light, and ultraviolet light, or any combination of the three.

10 8. The biochemical sensing device as claimed in claim 1, wherein the current/voltage converting circuit can include at least one current mirror so as to amplify the current signal.

9. The biochemical sensing device as claimed in claim 1, wherein the current/voltage converting circuit can include at least one resistor so as to  
15 convert the current signal into an analog voltage signal.

10. The biochemical sensing device as claimed in claim 1, wherein the current/voltage converting circuit can include at least one capacitor so as to convert the current signal into an analog voltage signal.

11. The biochemical sensing device as claimed in claim 9, wherein the  
20 current/voltage converting circuit can include an analog/digital converter so as to convert the analog voltage signal into the digital voltage signal.

12. The biochemical sensing device as claimed in claim 10, wherein the current/voltage converting circuit can include an analog/digital converter so as to convert the analog voltage signal into the digital voltage signal.

13. The biochemical sensing device as claimed in claim 9, wherein the electronic device can include an analog/digital converter so as to convert the analog voltage signal into the digital voltage signal.
14. The biochemical sensing device as claimed in claim 10, wherein the  
5 electronic device can include an analog/digital converter so as to convert the analog voltage signal into the digital voltage signal.
15. The biochemical sensing device as claimed in claim 1, wherein the processing method used by the electronic device to process the voltage signal is selected from transmission, storage, and analysis or any  
10 combination of the three.